TREPHINING IN BOLIVIA

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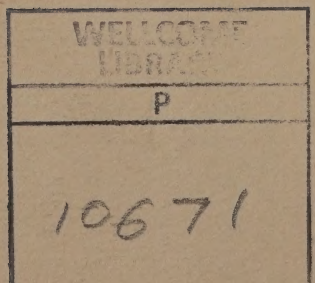

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ABORIGINAL TREPHINING IN BOLIVIA[1]

BY ADOLPH F. BANDELIER

While engaged in the investigation of Indian ruins in Bolivia, for the American Museum of Natural History in New York, we spent the greater part of the year 1895 on the island of Titicaca and on the shores of the lake of that name. Up to this time, while in Peru, we had not found any skulls showing marks of trephining, and indeed had only heard of their existence in that country, but the belief was expressed that they were also to be found in Bolivia.

During our excavations at a site called Kea Kollu Chico, on Titicaca, we found, close together, in loose soil and without regularity of interment, at least ten trephined crania, which are now in the American Museum of Natural History. Subsequently we found in other parts of Bolivia, but still within the range of the Aymará Indians, sufficient specimens to increase the entire collection to sixty-five. As the total number of skulls collected by us is nearly twelve hundred, it gives for those on which trephining had been performed the proportion of about five percent.

These trephined crania were obtained by means of excavations at various points within the department of La Paz. Most of them came from the tableland, near Sicasica, south of the city of La Paz, but others were obtained from the southeastern end of Lake Titicaca, from the peninsula of Huata, from the northern and southern flanks of Illimani, and from the eastern slope of the cordillera, near Pelechuco and Charassani. At the latter places but few were found, for the reason that human remains are usually decayed beyond recovery on account of moisture.

The trephined skulls sent to the Museum were investigated and arranged by Dr Aleš Hrdlička, so that a description of them would be superfluous. I desire, however, to allude to the present custom of trephining among the Aymará Indians. The valuable memoir

[1] Published by authority of the American Museum of Natural History, New York.

by Drs Muñiz and McGee[2] furnishes many data on this interesting custom among the ancient Quichua of Peru.

None of the sixty-five trephined crania mentioned above shows quadrangular trephining by incision, as in the case of most of those from Peru described and illustrated by Muñiz and McGee. It may be that the Aymará performed this same method of trephining, but such did not come under our notice.

While at Umayo, near the northwestern shore of Lake Titicaca, the administrator of the hacienda informed me that some twenty-five years before he had known a man near Cuzco who had been trephined for skull-fracture and who wore a piece of gourd inserted in the orifice. I inferred from his conversation that both the operator and the man on whom the operation was performed were Indians. This was the first intimation we received that trephining was practised by Indians at the present time.

Inquiry among the Aymará of Bolivia convinced us that some of them knew about trephining, but were unwilling to impart any information concerning it. When we showed them perforated crania, the usual remark was that they neither knew what it meant nor how it was done. Medicine-men of high standing were sometimes numbered among our laborers, but they were seldom approachable, and in the rare cases, when it was possible to question them, they invariably declared the trephined crania to be those of priests and the perforation the result of tonsure. On the peninsula of Huata, however, we were fortunate enough to find mestizos who held intimate intercourse with the Indians and who gave us information which was subsequently corroborated.

Trephining is today practised in Bolivia, and probably also in the Peruvian sierra, by Indian medicine-men. The operation is performed with any available cutting instrument, such as a sharp pocket-knife or a chisel, and the process is one of incision and scraping. We heard of one case — that above mentioned — in which the aperture, although irregular, was covered by a piece of gourd; but this, if true, would appear to be exceptional. The Indian lived, and possibly still lives, about twelve miles north of La Paz.

[2] *Primitive Trephining in Peru*, Sixteenth Rep't of the Bureau of American Ethnology, 1894–95, pp. 3–72.

Francisca Calderón, an Indian woman from the vicinity of Huata, had her skull fractured in a fight and was trephined. The aperture was about the temporal ridge, irregularly oblong, and had not been closed; the skin was sewed over it and she felt little discomfort except after a debauch. The operation was performed, with simple, well-sharpened pocket-knives, by a well-known Indian medicine-man named Paloma. The woman said the operation was painful, but beyond this she was uncommunicative; she disappeared as soon as possible and avoided us studiously thereafter. The Aymará Indian, on all such matters, is very reticent toward foreigners, unless he expects relief or assistance; even then he gives only the most indispensable information, and lies deliberately if he thinks some benefit may accrue from it.

At the pueblo of Apolobamba, near the river Beni, in north-eastern Bolivia, a mestizo of consideration named Gregorio Gamez fractured his skull on the left side, above the temporal bone. An amateur surgeon (*aficionado*) trephined him, Indian fashion, and the aperture, which is oblong and irregular, was left open, only the skin being sewed over it. The operation was performed with knives, and Gamez asserted that little pain was felt after the periosteum had been cut, and no inconvenience was experienced after the wound had healed.

Everywhere we heard that trephining was not a "lost art" among the Aymará Indians. It is still performed by the medicine-men, and not infrequently, since fractures of the skull occur during every one of the annual or semi-annual engagements fought between neighboring communities and in the drunken brawls accompanying their festivals. Why the operation is kept secret as far as possible was not ascertainable, for no inconvenience results to the Indian during the healing process so long as reasonable care is exercised. The intimate connection, however, between Indian medicine and witchcraft, and the belief in the reality of "*malefice*" among both mestizos and Indians, are conducive to many crimes, very few of which are ever punished.

That the medical faculty of Bolivia is not jealous of the Indian shaman and does not look upon him as transgressing the law, is shown by their treatment of the Aymará Indian Paloma. This

individual died a few years prior to our visit to the peninsula of Huata, so that our information is derived at second hand, but it comes from sources that place it beyond doubt.

Paloma dwelt at or near the town of Hacha-cache, north of La Paz and a short distance from the lake. He was a shaman or medicine-man of the class called *Kolliri*, who practise Indian medicine, or medical magic, as a special vocation along with the common arts of husbandry or any menial work by which to gain a livelihood. Paloma appears to have had a natural talent for surgery, trephining with striking success although with the most ordinary cutting tools. His fame extended beyond the limits of the province of Omasuyos, of which Hacha-cache is the capital, and some of the members of the medical faculty at La Paz, learning of his successful operations with such clumsy implements, presented him with a box of surgical instruments which, it is stated, he never used, preferring his own primitive way. Whether this detail is true or not I am not prepared to assert, but the fact of the gift has been repeatedly affirmed and seems to be well established. He required and accepted compensation like all medicine-men, when he thought he could get it, but he also plied his professional vocation without pay. Indians in straitened circumstances (and they always declare themselves paupers when it is to their interest to do so) were attended by him without charge. Paloma was a benefactor to his community, since at his time physicians were almost unknown outside of La Paz. He acquired the art empirically and through training by other and older shamans, and made no secret of it. This fact makes it the more singular that the Indians, without the least cause for apprehension, so persistently deny acquaintance with the process, and indeed the same reticence is manifested toward all whites with respect to every phase of their life and activities; their simplest and most harmless actions and customs are concealed or denied. This comes from a profound aversion to all whites, and especially to foreigners. In early times Indian medicine-men were sometimes persecuted, and not without reason, for many of their practices are dangerous. In this connection I wish to state that while I am far from believing in the possibility of direct results, evil or good, from witchcraft, belief in it is by no means harmless.

Those having faith in sorcerers are induced to crime, since, as they believe in the supernatural power of witchcraft, they rely on it for protection, hence regard crime with impunity.

We found no trace of trephining among the Indians at the present time for any but external injuries, but it does not follow that they use it only for the purpose of removing splinters of bone or for relieving pressure on the brain. Among the trephined crania which we disinterred from the burial places there are some that do not show any indication of lesion; there are also specimens that exhibit two to four perforations, some of them quite small. The theory has been advanced that trephining was a ceremonial operation, and it has even been suggested that it was performed as a punishment for crime. I believe the latter interpretation to be scarcely worthy of serious attention; but the hypothesis that it contained a religious element is not to be discarded entirely, for in cases where a trephined skull exhibits no lesion whatever, the operation was doubtless performed for other than an external cause. The Indian attributes every disease to spiritual influence, from the moment it resists ordinary remedies, and even in cases in which the cause is absolutely unquestioned he suspects the interference of higher powers.

This fact came forcibly to our notice on one occasion while on Titicaca island, when my wife hurt herself against a stone. The shaman whom I had taken care to assign as her assistant, so that she might observe him and glean such information as might be possible, told her to eat a small piece of the stone, lest it injure her again. Indians, like other mortals, suffer from pain in the head; when the pain becomes persistent, suspicion of evil powers dwelling within the cranium, or of some evil substance smuggled inside of it through sorcery, naturally follows. In such cases, after all other charms have proved ineffectual, the final resort is to perforate the skull and let the evil out. This is a religious act, and trephining in such cases is accompanied by ceremonies, which are as yet unknown to us. There is abundant evidence that the existence of foreign bodies in our organism is believed by the Bolivian Indians to be the cause of many diseases, and the *callahuayas* or peddling shamans of Curva, near Charassani, are known to make a lucrative industry of the trick of "extracting" these fancied germs of disease. Suck-

ing of parts of the body afflicted with pain or ulceration is common among the Aymará and Quichua, as among other Indian tribes. We know of an instance in which two medicine-men, near Huata, drew the pus from a syphilitic tumor by means of their lips, and the only precaution taken by them was to rinse their mouths with alcohol before and after the process. Another case known to us is that of two *callahuayas* who pretended to expel live toads from the body of a man suffering from chronic dysentery, and produced the reptiles in testimony of the cure; but the division of spoils caused such a lively broil between the impostors that the trick was exposed. However, the impression which the performance created on the patient's mind, combined with the violent internal remedies used, effected a complete cure. Where such a belief is so deeply rooted, it would not be strange if the same people had opened skulls of those suffering from tumors or from chronic headache, in order to drive out the evil spirit believed to be responsible for the ailment.

The Indians have no anesthetics, properly so called, but the constant use (or I might say abuse) of *coca* creates insensibility. The plant is always applied by them to wounds, bruises, and contusions, and it certainly tends to deaden pain, if not to eliminate it. In this manner the Indians unconsciously employ an anesthetic, although they believe only in its healing qualities.

As to the implements used in trephining before the introduction of iron, we have no positive knowledge. At the ruins of Chujun Paki, near Huata, my wife obtained from a cyst a fragment of skull which had been trephined, and close to it was a small, rude bowl containing two fragments of chipped obsidian with very sharp edges. From the coast at Arica we procured a lancet consisting of a sharp obsidian point inserted in a wooden handle, the point resembling the extreme tip of an arrowhead. While investigating the ruins at Ezcupa, near Pelechuco, in northern Bolivia, on the eastern slope of the Andes, one of our men complained of a strained knee. Our principal laborer at that time was a Quichua medicine-man; he at once broke a bottle in which he had carried alcohol for the offering (without which no excavation, it is thought, can be successful), and from the sharpest fragment made a lancet, with which he bled the

painful spot. There were knives at hand, sufficiently sharp for the purpose, yet the Indian refused to use anything but the glass, which, as it resembled obsidian, he may have preferred on that account.

The primary cause of the invention of trephining by the mountain tribes of Peru and Bolivia may be looked for in the character of their weapons, which are mostly blunt, for crushing and breaking; hence they had to deal almost exclusively with fractures. The ancient missiles were and still are the sling-stone and the *bola* or *lliui*, but at close quarters a club of stone or of metal was chiefly used. Spears were carried by the Incas of Cuzco as well as by those of the coast, but their use was not general. A fracture of the skull sometimes resulted in almost instant death, but on the other hand many survived wounds of this sort, at least for a time, and an attempt to remove splinters of bone that pricked the brain, or to cut out fragments that pressed upon it, must have been early regarded as a natural procedure. From such operations on external injuries to similar ones for internal maladies the step was comparatively short.

In closing this brief paper I may say that the Aymará Indians of the province of Pacajes, on the western slope of the cordillera in northwestern Bolivia, were among the few tribes that, in their primitive condition, used bows and arrows. They also employed lancets of flint for bleeding. The Aymará language contains the terms *llisa*, "white flint," and *chillisaa kala*, "black flint," or obsidian. The latter material was especially used for shearing the llama, and there is every likelihood that where obsidian was obtainable, implements made from it were employed in many cases for trephining. The Jesuit Bernabé Cobo, who wrote in the first half of the seventeenth century, and who had considerable practical acquaintance with the Indian tribes of the Peruvian and Bolivian mountains, mentions the custom of bleeding with "very sharp points of flint" and that in very serious cases the shamans placed the patient in a room by himself, "and the sorcerers did as if they would open him by the middle of the body with knives of crystalline stone, and they took out of his abdomen snakes, toads, and other repulsive objects."

It is a source of surprise to me that thus far I have not been able to find any mention of trephining in the early sources.

181 Claremont Avenue, January 29th. 1922.

Dr: C:J:S:Thompson,
Curator :
Wellcome Hist: Medical Museum,
London W:
England.

Dear Dr. Thompson:

I take great pleasure in answering your kind latter of Jan:2nd to the very best of my ability.

In the first place I must apologize--in the name of the reporter--for the many errors contained in the article. It seems that no matter how careful one may be in what one tells those rather dangerous creatures, they will get things all wrong.

I am enclosing my late husband's short account on "Aboriginal Trephining in Bolivia" which will clear all doubtful points I hope.

Allow me to add a few remarks which might prove of interest. While we were on the Island of Titicaca, I had occasion to take care of a young Indian who had been waylaid and cruelly beaten. His mother as "first aid remedy" had placed into a deep wound on his chin a mixture of chewed coca leaves and ground nettles, mixed with a little brown sugar, which, she explained to me had stopped the bleeding, but the blood had coagulated on the inside, the whole chin was frightfully swollen and I said I had to take that out in order to wash out his mouth. She dug it out with her nail! I couldn't see such barbarism although the boy did not show the slightest signs of pain. It seems quite certain that this mixture had deadened all pain. He got better very quickly after having been thoroughly cleansed and properly bandaged. Whether or not they again put the application of coca and nettles on later I donot know, I only know that the boy was recovering rapidly as he came to see me about a week later almost completely well.

I am writing to the curator of the Anthropological Dept. of the Am. Museum of Natural History to see whether he will perhaps order a little cast made of the obsidian splinters we found and which might have been used in operations as you will see in the enclosed article.

Kindly let me know whether there is anything else you might wish to know about singular Indian customs and which perchance it might be my good fortune to be able to tell. I shall always be very glad to be of assistance. I have the deepest interest in all questions related to our work in Bolivia where I was my husband's only assistant. The Indians came to me for help in all their ills and woes and I have tried my best to help the best I could. There are many curious incidents I ~~migh~~ might tell you.

I thank you very much indeed for the lovely handbook of your very interesting Museum, I only wish I were in London to really see it!

With kindest regards,

Yours very sincerely:

Fanny R. Bandelier